

REPORT OF FOUR MONTHS' OPERATIVE WORK
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IT is with some hesitation that a surgical paper in this form is now brought before the members of this society, but it is believed that, beside the details of interesting and important operations which are here presented, the opportunity that is thus afforded of making short comments on both major and minor points in surgical practice may be productive of value, if not in the paper itself, at least in the precedent that may be established. Personally I feel that much that is hardly worthy of a separate paper must be continually developing in the practice of my hospital *confrères* that I should be glad to hear about. The city is so large and time so valuable that we have but little chance of visiting one another's wards, and, unless some specified mooted topics are deliberately announced for discussion and comment, I do not know how better such can be considered, or the experience of our hospitals grouped, than in the way I have this evening ventured upon. It is easy, also, for me to see that this can be done in a much more satisfactory manner than is now attempted, and time will quickly prove this, should my example be justified by an imitation.

It is known, I think, to all the members of this society that the majority of our hospitals are conducted upon what myself and others consider the erroneous plan of allotting to each of the attending surgeons terms of service ranging from two to six months, depending upon the number of surgeons connected with the hospital. Lately an improvement has been made in several of the hospitals, of which the New York Hospital is one, by which the term has been increased to an average of six to eight months. It is anticipated that in a short time a further beneficial change to a continued service (such as is resorted to

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as a rule in England and on the Continent) will be fully established. The foregoing remarks are intended to be explanatory of the statement that my last assignment to service has extended from August 1, 1886, to February 1, 1887, but, by reason of my absence from the city, it has only embraced a period of four months, beginning October 7, 1886. From that time until the present, having under my charge wards comprising 55 beds, I have had out of 339 cases of all kinds 105 operations to perform, a large number of which were of importance. Of these there were 19 on the head and neck, 53 on the trunk (of which 23 were on the genito-urinary apparatus) and 33 on the extremities. This is a division which, while not strictly scientific, allows of ready grouping of cases, and it is on this account adopted.

The operations on the head and neck were principally as follows: Two were done for the relief of deformity of the nose. The points in each case are worthy of brief mention:

Deformity of the Nose from a Fall.—C. E. P., æt. nineteen, was admitted January 4, 1887, with the history that fifteen years before he fell into an area, a distance of seven feet, striking on his nose, and flattening it by apparently crushing in the cartilaginous septum. The nose is now increased in breadth at the lower part and is sunken in, and the bony plate of the nasal process of the maxillary bone is unduly prominent. The septum is much thickened for half an inch below the skin, but is not deviated. On January 7, Dr. Weir, with a fine wood-engraver's chisel, cut through the nasal processes from without and forced them inward and toward each other, holding them *in situ* by a needle passed transversely across the nose, the ends being prevented from pressing against the skin by pads of iodoform gauze. At the tip of the nose from within the nares the thick skin was separated from the cartilage for a considerable distance by subcutaneous dissection, and was pulled forward and held in place by a silver wire clamped at each end with a shot over little cork plates, so that the broad freshened under surfaces of the skin should be brought together.

The upper pin was removed on the fourth day, as some sloughing was apprehended on account of pressure; this was immediately relieved. The lower wire was kept *in situ* twenty-four hours longer, no

ulceration having occurred under the cork-pads. Lateral compresses were retained for a few days longer. The result was excellent in this case, as will be seen by the patient himself, who is submitted for inspection.

The second patient had the end of his *nose bitten off* in a fight; the operation consisted in replacing the parts lost. The result was fully satisfactory, though it was subsequently necessary to utilize a portion of the columna in order to fill up a slight gap in the edge of the nostril.

Besides the operations on the external nares, there were two others of more importance. One was for a *peculiar bony tumor of the nose*, met with in a young woman of twenty-two, who had since her tenth year difficulty in breathing through the right nostril, which had lately increased, and which has been associated with hemicrania on the corresponding side. At the orifice of the nostril is seen a fleshy growth, beneath which is a firm, bony mass. Nothing could be passed into the nose by the side of it. Although no swelling of the cheek existed, it was determined at the operation, after the exposure of the bone by the usual incision carried from the middle of the lip around the nose, to open the antrum in order to see if the growth invaded that cavity. This was done with a small gouge, and it was found to be free from disease. The bony growth, which apparently consisted of the greatly hypertrophied inferior turbinate bone, was removed with a forceps, and the operation was thought to be completed; but it was noticed that the blood which collected in the nose did not run down the throat, and this was found to be due to the fact that the posterior portion of the bone shut off the posterior nares, only permitting a fine probe to be passed into the naso pharynx. This part of the bone was thereupon removed, then the passage was found to be quite clear. The patient has since been free from all unpleasant symptoms, except the annoyance due to collections of muco-purulent crusts.

The remaining nasal case was one of *fibro-sarcoma of the nose, removed by Chassaignac's operation; recurrence in the brain*. The patient, a man æt. forty-two, had been troubled for over a year with a stuffy feeling in the right nostril, associated with haemorrhage. Two months before his entrance into the hospital a tumor appeared in the right naris, and an unsuccessful attempt was made to remove it by means of the snare. On his entering the hospital, his nose was examined by means of a rhinoscope, and the naso-pharynx was found to be free from disease, the posterior limit of the growth reaching not quite to the posterior nares. An attempt was made to remove it by cutting across

the nose at its attachment, on a level with the eyes, and sawing through the nasal bones, carrying the cut downward on the right side of the nose along the labio-nasal junction to the left ala. This allowed the whole nose to be tilted to the left side, and gave free access to the entire tumor. After removal of a quantity of a soft growth by means of the curette and wire loop, it was found that the neoplasm extended so far into the ethmoidal and sphenoidal cells that it would be unsafe to follow it farther. The cavity was packed with iodoform gauze, and the patient made a speedy recovery, leaving the hospital two weeks later much relieved. Six weeks after, he began to have slight divergent strabismus and amblyopia in the right eye; soon there was total loss of vision in this eye, and the other eye also began to be affected, showing plainly that the neoplasm had extended to the brain, or at least beyond the cranium. By the aid of the rhinoscope its recurrence in the nose could also be perceived.

Irrespective of the cerebral extension, it would have been better in this case to do the usual partial resection of the jaw, according to Maisonneuve's suggestion, as this would not only have allowed a more thorough extirpation of the growth, but would have enabled one to detect and to treat early any recurrence.

In addition to the foregoing operations on the face, there were one for necrosis of the upper and one of the lower jaw, one for hare-lip, closed by Mirault's method, and one for the removal of an extensive mushroom epitheliomatous growth, four inches in diameter, on the side of the face in an old man of seventy-three, the operation being performed for the arrest of haemorrhage, which was becoming profuse and frequent. The growth contained scattered epithelial cells.

Another operation was performed for the removal of epithelioma involving the entire lower lip, a V-shaped incision being made, and a new lip formed, after Burow's method. The interesting point in this case lay in the fact that, although the clinical appearances of epithelioma were typical, neither the mass removed nor an enlarged gland (extirpated from beneath the right side of the jaw) showed any microscopical evidences of epithelioma until more than thirty slides had been examined by the pathologist. This may serve as a lesson not to trust

too much to the microscope in cases of small sections of suspicious growths, especially those of the mouth, tongue, and similar localities. There was one operation for the relief of neuralgia of the inferior dental nerve, the details of which are as follows:

Intra-buccal division of the inferior maxillary nerve was done for severe neuralgia, affecting the right side of the face, but principally the lower teeth, and associated with flashes of pain along the course of the auriculo-temporal nerve. This had existed at intervals for over three years, but during the past ten months the pain had been more or less continuous. All the usual internal or local treatment—such as with quinine, arsenic, aconitine, morphine, electricity, etc.—had been tried, but without giving relief. On October 11, 1886, the patient was etherized, and, his mouth being held open by a gag, an incision was made, extending from the upper to the lower jaw, along the inner edge of the latter. The spine of Spix was exposed, and the nerve seized with a strong, slender forceps at the point at which it enters the dental canal, and divided with scissors above and below the forceps. The small mass removed, however, did not plainly show nerve tissue, whereupon a blunt hook with a short curve was introduced two or three times, until finally it was passed well back and drawn forward, when it seized a cord which was supposed to be the nerve. This was divided with scissors, when quite a severe haemorrhage took place, which could only be controlled by rapidly packing the wound with iodoform gauze. The haemorrhage recurred the same evening, several ounces more being lost, but it was checked by additional compression, the jaws being firmly bound together so as to force the compress against the wound. The gauze was removed from the wound piecemeal, the last being taken away by the tenth day. The patient has been free from pain from the time of the operation up to February 1, when she was last heard from, and has gained greatly in flesh.

Whether the haemorrhage came from the inferior dental artery or, as I feared at first, from the internal maxillary, I cannot positively determine, but since I have heard of a similar mishap in an operation conducted in a much simpler manner than mine, I am led to think that it arose from the former vessel. I have performed this operation now three times. In the first case it was readily completed by the re-

moval of a small portion of the nerve, grasped by the slender forceps which were used, and the success was permanent. In the second a good deal of difficulty was encountered, and, although the nerve was finally divided, the pain recurred after an interval of three months.

Of the Surgery of the Brain, two interesting examples can be given, the first being

A case of *cerebral abscess* following an old injury. The patient in 1880 received an injury of the left frontal region, just above the eye-brow, by his gun exploding and lodging its breech-pin in his brain. When it was extracted at the hospital, the anterior clinoid process of that side could be felt by the finger. A number of bone fragments were removed, together with some brain-substance. No cerebral symptoms followed until four months later, when occasional epileptic fits appeared; but none have occurred during the last two years. Last summer he had a painful pulsating swelling over the site of the old injury, which passed away under treatment with large doses of iodide of potassium and local blistering. About ten days ago he began to have much pain and headache on the left side of the head, over the brow. When sent to the hospital by Dr. Seguin, on November 7, 1886, there was some cedema of the left upper lid and great sensitiveness over the region of the old cicatrix, and there was a feeling of deep fluctuation. There was no paralysis of motion or sensation. Under ether a V-shaped incision was made, the old scar being raised, when an opening in the skull the size of the thumb-nail was exposed; this was filled by a dense membrane, which pulsated visibly. A puncture with a hypodermic needle revealed the presence of pus, whereupon the membrane was incised and nearly two teaspoonfuls of pus were evacuated. The abscess cavity extended nearly an inch beyond the level of the skull. It was at first thought that it might be the original frontal sinus, but its depth and the evident pulsation showed that it was within the cranial cavity, although shut off from the brain by a thick layer of inflammatory material. It was packed from the bottom with iodoform gauze.

During the evacuation of the pus the patient's respiration wholly ceased, and only by practicing artificial respiration, lowering the head, and administering whisky hypodermically, could it be started again. It was a question whether this was due to the ether, to the interference with the brain, or to both factors.¹

¹This phenomenon has been noticed by others in cases of abscess of the brain. See Nancrede, "Trans. of the Am. Surg. Association," vol. ii.

The second case was an unsuccessful attempt at removal of a sarcomatous tumor from the brain. Spurred by the brilliant, though unsuccessful, result of operative interference in cranial growths at the hands of Godlee in 1884,¹ whose case was followed by another reported by Hirschfelder and Morse,² and by a third and fourth by Horsley³ (the latter's paper, rich in suggestions, was received too late to be of use in the case to be described), surgeons will undoubtedly be led to widen their domain, and exploratory operations in this region of the body will soon become numerous. The history of an unsuccessful case will, however, serve an important purpose, and it is now intentionally brought strongly forward in order to illustrate the difficulties that surround the subject, not only for the surgeon, but for the neurologist who guides his knife.

A Case of Trephining for Sarcoma of the Brain; Temporary Relief from the Operation, but Death Ten Weeks Later; Tumor of the Cerebellum and Cord.—Mary R., æt. twenty-six, was admitted into the hospital September 16, 1886, with the following history: The patient has had four operations in this hospital for sarcoma of the neck, the first two years ago, the last six months ago. During the last operation the brachial plexus was freely exposed, and the patient afterward suffered from paralysis of the left upper extremity; from which she has only partially recovered. For two months or more she has been annoyed by precipitate micturition and defecation. Six weeks ago she first noticed cramps in the calf of the left leg, which usually occurred at night and prevented her straightening the limb. About the same time she noticed that the left knee frequently gave way under her while she was standing, and once she fell in consequence. During the last week she has had occasional clonic spasms of the left leg. Frequent cramps and numbness in the left hand have been noted during the past six weeks; during the past two weeks the right has been similarly affected. For three weeks she has suffered from frontal headache, generally confined to the right side, and always worse on walking. Besides this, she often "feels as if her head was being hammered."

¹ "Lancet," vol. ii. 1884, p. 1090, and vol. i, 1885, p. 13.

² "Pacific Med. and Surg. Journal," April, 1886, p. 210.

³ "Brain Surgery," "British Med. Journal," October 9, 1886. Four cases are given, two operations being undertaken for tumors, with satisfactory results.

On examination, no tenderness is found at any part of the scalp, or over either supra-orbital nerve. There is no paresis of any muscle supplied by the cranial nerves. The right hand is perhaps a little weaker than normal, but the old paralysis of the left hand prevents any comparative test. Paralysis of the left sympathetic is shown by narrowing of the left palpebral fissure (from sinking of the eyeball) and contraction of the pupil. The left biceps, triceps, and deltoid muscles are paralyzed, and there is paresis of the left leg below the knee. The left patellar reflex is exaggerated. Ophthalmoscopic examination shows slight optic neuritis on the left side, the disc at the point of exit of the large blood-vessels being indistinct.

September 26.—The paralysis of the left leg has gradually increased, and at times there is twitching of the right side.

October 11.—While waiting for further developments she became rapidly stupid, and, after consultation with Dr. Amidon, who had had the patient under observation prior to her entrance into the hospital, an operation was advised, and was performed under his directions.

Operation.—The position of the fissure of Rolando having been previously marked out, and the tumor located at the upper limit of this fissure, one inch from the median line, the scalp having been shaved at this point, a crucial incision was made, the longer cut being just in front of and parallel with the fissure. The scalp was dissected up, and with a large trephine a button of bone was removed from a spot one inch and a half to the right of the median line; this opening was enlarged with a double gouge-forceps to the size of an inch by an inch and a half. The dura mater was found to be very tense and bulging; a crucial incision was made through this membrane, whereupon the deeply congested brain substance projected into the wound. Nothing was felt by the finger, and a needle carried in several directions encountered no resistance. As the brain now projected above the level of the skull, a piece half as large as a hen's egg was excised and reserved for microscopical examination. Its substance was deeply pigmented and very vascular. The bleeding was quite profuse, but it was checked by pressure and by Paquelin's cautery lightly applied. The flaps of the dura mater were laid over the cut surfaces of the brain and covered by a strip of iodoform gauze, one end of which was allowed to protrude from the posterior angle of the wound. The scalp was sutured closely up to the latter point, and a dressing of bichloride gauze was applied. The iodoform gauze was drawn out forty-eight hours later. The wound healed rapidly, but within six days the brain bulged through the cranial opening beneath the healed scalp, and the hernia gradually increased until it reached the size of a hen's egg.

No unfavorable reaction followed the operation. The following signs of improvement were observed and were attributed to the lessened cerebral tension, viz., the headache disappeared immediately and did not recur. The spasms of both limbs also ceased, and a temporary improvement in the impaired muscular power of the left side was likewise observed. The portion of brain excised from its gross appearance suggested the possibility of its being infiltrated with a soft sarcomatous growth, but the microscope showed nothing abnormal. About three weeks after the operation more decided evidence of analgesia and paresis of the right side appeared more clearly, and the same phenomena were increased on the left. It was evident that the neoplasm, or a second one, was situated at the upper portion of the cord, or in or near the medulla. The patient gradually became more paralyzed, and died December 25, nearly two months and a half after the operation. The report of the autopsy, as made by Dr. Amidon and Dr. Vought, together with the description of the tumor by the pathologist, Dr. Peabody, is appended.

Autopsy.—The hernia cerebri, so prominent during life, had entirely collapsed. On removing the scalp, it was necessary to divide some connective tissue between the scalp proper and the more intimate covering of the hernia. There were slight adhesions around the trephine-opening, between the dura and the pia. On removing the calvarium, a considerable protrusion of apparently disorganized cerebral substance appeared at the site of the operation. The blood-vessels of the pia and the pia itself over the entire brain were normal. On making a transverse section through both hemispheres, nothing abnormal was found except a slight diffuse hardening (probably inflammatory) in the *centrum ovale* beneath the site of the operation. The ventricles were normal. At the base of the brain there was seen a grayish, translucent tumor, springing from the lower surface of the left lobe of the cerebellum and compressing the subjacent medulla, the latter being displaced forward and to the right side. The medulla was compressed at a point below the calamus, where it was much flattened. On dissection, the substance of the medulla proved to be entirely uninvaded by the growth, the connection of which with the cerebellum was very intimate. An incision through the antrum of the left cerebellar lobe showed no diffuse infiltration of that body. The fourth ventricle was invaded by the growth, but was apparently out of the line of direct pressure. Starting from the cerebellum, as described, the tumor extended down the left postero-lateral region of the spinal canal, between the dura and pia for a distance of at least ten ctm., the cord being naturally much

displaced to the right side and anteriorly. The tumor was grayish, translucent, and non-vascular, and presented no evidences of inflammation at any point. It had no connection with the cerebellum, having apparently originated in the pia. Small portions of the fourth, fifth, and sixth spinal nerves were removed and were found to be normal. A small subcutaneous fibrous tumor was excised from the back, just below the right scapula.

Microscopical Examination.—Sections of the tumor of the cerebellum and cord were examined, and the growth was found to be an ordinary spindle-celled sarcoma, containing many round cells. It was not very vascular, and the stroma was not abundant.

Another case of supposed tumor of the cerebellum now in my wards illustrates the diagnostic difficulty of such cases, as four neurologists, after an examination of the patient, have assigned different cerebral localities to the growth. In this, and in fact in all points bearing on this subject, the admirable collection of one hundred cases of cerebral tumor, with their analysis, by Dr. W. Hale White, lately published in "Guy's Hospital Reports,"¹ will be of great service to the investigator. Of the tuberculous growths (forty-five in number), more than half occurred in children under ten, and when found in adults, there was usually tuberculous disease elsewhere; like the carcinomatous tumors, five in number, all multiple and secondary; all these are unsuitable for surgical consideration. Out of the twenty-four gliomata and ten sarcomata (the cysts being only four in number and too rare to be considered), which alone offer a reason for surgical interference, there were only four growths that could have been removed with any certainty, two of which were gliomata, and situated in the cerebellum. Only one of the ten sarcomata was removable. Aside from the fact that the situation often precludes the operation, the frequent occurrence of infiltration in connection with sarcomatous growths will have the same effect. This infiltration existed in the case reported by Hirschfelder, in which only a portion of the neoplasm could be removed, the patient dying eight days later from suppurative encephalitis. White's other cases included five gummata, two glio-sarcomata, one

¹ Vol. xxviii, series 3, 1885-86.

lymphoma, one myxoma, and three which were of a doubtful nature. Taking into consideration the question as to whether tumors could have been sufficiently localized during life to warrant surgical interference, White found from this clinical standpoint that three tuberculous tumors might have been removed, and that four gliomata, one sarcoma, two cysts, one myxoma, and two of the three doubtful growths, or 10 per cent. of the number, might have been operated upon *provided a correct diagnosis could have been made*, a condition that is sadly nullified by his just statement that the best diagnosticians so frequently make mistakes, that a certain number of cases suitable for operation might be unsuccessful, because the position of the growth was not exactly defined. For further information concerning this interesting though somewhat obscure and difficult subject I would heartily refer to this article *in extenso*. For the special points in the operative technique, the best yet given is by Horsley, and is briefly summarized as follows: In addition to a strict antisepsis, he makes an oval scalp-wound and a very large cranial opening, using a trephine two inches in diameter, and replacing the bone when possible. The dura mater is incised in a circular manner, and is turned back like a large flap. In incising the brain, the cuts should be vertical and directed into the corona radiata to avoid damage. Haemorrhage should be checked by pressure; drainage of the wound is also urged. Stress is laid by him on the immediate bulging out of the brain as indicative of a tumor. It was noted in all three of his cases and in my own; it is not met with, he says, in healthy animals on which he has tested this experimentally. This is, therefore, a symptom of intracranial pressure of high importance.

On the neck seven operations were performed, viz., two for sarcomatous tumors, one for removal of a huge secondary glandular epithelioma (thought to be sarcoma until the microscope corrected the diagnosis; time subsequently showed what had escaped previous detection—primary trouble in the oesophagus at the level of the cricoid), one for keloid of the neck, and two for papillomata of the larynx. The latter can be summarized in a few words.

The first case was one of *crico-laryngotomy*. The patient was a girl, æt. eight years, who had lost her voice a few months previously, and had recently had frequent attacks of dyspnœa. Since Dr. Lefferts was unsuccessful in his attempts to extract the growth through the mouth, in spite of the courageous assistance of the patient, she was sent to the hospital to have thyreotomy performed. This was done under ether, November 6, 1886. A preliminary tracheotomy below the isthmus having been done, the cricoid cartilage was divided unintentionally, and then the thyroid, so that the whole larynx was thus laid open, a perfect view of the growth being obtained. It was attached anteriorly to the left side just below the cord; after its removal with slender scissors, its base was touched with chromic acid; the thyroid and cricoid cartilages were accurately sutured with catgut, as well as the entire wound. The tube was kept in until the next day, when the breathing became rapid and signs of broncho-pneumonia appeared. As the larynx was pervious, the tube was removed, as being a possible source of irritation. The patient passed through a prolonged convalescence, and during the first week of her illness, in consequence of the coughing and the catgut which I now think was wrongly selected for sutures, the wound in the lower part of the thyroid and the cricoid gaped widely, necessitating the use of two wire sutures to close them, at the expense of exact coaptation. The patient's voice was restored, but when she left the hospital (December 20) she was still hoarse. The wound had healed perfectly. The risk of voice impairment led in the second case to a change in the operative procedure, at the cost, however, of thoroughness of the removal of the growth.

Cricotomy for Papilloma of the Larynx.—A girl, æt. two years, was sent to me by Dr. Lefferts as unsuitable for surgical treatment *per vias naturales*. She had been hoarse since she was a few months old, breathed with difficulty, and had lately had several severe paroxysms of dyspnœa. On November 20, 1886, by an incision two inches long, the cricoid cartilage and crico-thyroid membrane were divided, and the edges of this wound in the air-passages held apart, thus giving a very good view of the papilloma, which was removed in numerous small masses by means of slender forceps, fine scissors, and a small sharp spoon. The larynx above was readily explored by holding the cords open with a forceps. The wound in the cricoid cartilage was closed with catgut, and rapid recovery followed, so that by December 8 the incision had closed, and the patient left the hospital breathing easily, although her voice was not restored. Subsequently it was learned that phonation became intermittent, showing that a portion of the growth had probably been left *in situ*.

In addition to the foregoing there was one operation for the removal of an *adenoma from the substance of the thyroid gland*, after Socin's method, which has already been reported to this society, and beside this, a rather pleasing result in the treatment of an intractable affection was obtained by the

Extirpation of a Sub hyoid Bursa.—The tumor had existed for fifteen years in a young man of twenty-two, and had attained the size of a small egg. It had been tapped and injected with iodine at another hospital four months before. Appreciating the difficulty of dissecting out these troublesome thin-walled cysts satisfactorily, I emptied this one with a trocar and canula, and then injected into it melted paraffin (which liquefies at a point much below boiling-heat), and subsequently cooled it with a small bag of ice. The whole procedure did not occupy five minutes, and by its aid I was enabled, after exposing the cyst by dividing the skin and thyro-hyoid muscles, to remove with great ease the entire sac, even up to its attachment at the posterior border of the hyoid bone, which part would undoubtedly have escaped me had the cyst remained flaccid instead of being rendered a hard, dense mass.

This method has in other instances served me well, and is to be commended, because it avoids the persistent fistula which so often results from this bursal inflammation.

Of the 52 operations on the trunk, 5 were for tumors of the breast—viz., one simple and one cystic adenoma and three carcinomata, two of which were primary and the third a recurrent growth. In *amputating the breast for cancer* I adhered to the custom of removing not only the entire gland, but also the contents of the axilla, even though no enlarged glands were felt through the skin, or even after the axilla was opened. In doing this, the directions first given, I think, by Bickersteth, of Liverpool, have been followed—viz., to carry the incision well on to the arm on a level with the insertion of the pectoralis major, and then to tear or to cut lightly through the layer of fascia there present, when, with the aid of blunt scissors or the finger-nail, the axillary vein can be isolated throughout nearly its whole extent, especially if the pectoral muscle is drawn upward by means of a broad retractor. If it cannot be so ex-

posed, and it is necessary on account of glandular enlargements, the pectoralis major and minor are divided without hesitation. After the vein has been duly cleared, the deposit of fat in the axilla is easily peeled away from the chest-wall, any veins of considerable size being tied before being divided. On account of the size of the cavity thus made and its extension toward the angle of the scapula, it is sometimes necessary to make the drainage opening for the axilla well below the line of incision. More important, because it is little known, is the fact that, in addition to the infected glands near the axillary vein, there is frequently found an enlargement of a lymph-vessel, together with several minute glands, which run under the pectoralis minor in a line extending toward the sterno-clavicular articulation. I have so often found these since my attention was accidentally directed to them a few years since, that now I never fail to hunt for them, and frequently find them. One patient with tuberculous axillary glands was also operated on in whom the infection had apparently come from a slight wound in the hand.

There were six cases of hernia, two being strangulated, two irreducible, and two reducible, and all of the inguinal variety. The radical operation was performed of tying off the sac and sewing up the ring by Czerny's method in one case, and in the five others by tucking up the sac and sewing up the canal and ring, as suggested by Macewen. The latter operation has been simplified¹ by exposing the external abdominal ring and then pulling apart the tissues over the sac with forceps until the latter is reached, when it can be readily lifted out of its bed with much less disturbance and more certainty than if reached first at a point lower down. There is also less chance of suppuration, on account of the slight disturbance of the cellular tissue.

When the omentum is found in a hernia, whether reducible or irreducible, it is carefully tied off with multiple and a final encircling ligatures; where there are omental adhesions plug-

¹ See a paper on "Reducible and Irreducible Hernia," by the writer, read before the New York State Medical Society, February 3, 1887. "Medical Record," March 5, 1887.

ging the internal ring, they are detached with the finger, so as to allow the omental stump to drop back into the abdominal cavity. I am able to show here a specimen removed from a patient who died from pneumonia and kidney disease three weeks after a radical operation for a huge incarcerated omental hernia, which, after removal, weighed about twelve ounces, the sac being tied off and removed, but the ring was not closed. Everything has healed up solidly, and adhesions have formed in the vicinity of the internal ring, which shut it off entirely from the influence of intermittent and abdominal impulses. I may remark here, as of some possible interest, that of the six cases recorded by Ségond, in which a post-mortem was held after tying off the sac, in only three instances was the internal ring satisfactorily closed. My individual preference (my experience in this operation being limited as yet) is for Macewen's operation, as it accomplishes better not only the closure of the peritoneal funnel at the internal ring, but also the more perfect occluding or narrowing of the inguinal canal. I have, however, discussed this question elsewhere, and shall not dwell further upon the numerous interesting points connected with the radical operation for non-strangulated hernia. The percentage of success in this operation is about sixty per cent., and from the interannular injection of Heaton, of which one case is reported, about thirty per cent. of cures can be expected in inguinal herniae of small size, in which the oblique canal still exists as such. Chromicized catgut is used in the radical operation for sewing up the canal and ring, in preference to silk or wire.

Among the cases is one in which, after the lapse of eight months, a silk ligature caused an abscess and faecal fistula, which closed promptly after removal of the offending body. I have for over two years endeavored to secure healing of the wound by granulation, at least in that portion of it which is situated immediately over the external abdominal ring, as this, to my mind, affords an additional barrier to the recurrence of the hernia.

On and about the rectum ten operations were performed, three for ischio-rectal abscess of unusual size, which accounts

for their being included in a report from which abscesses and minor operations have been omitted, save when some point of interest could be elicited. Such an instance is shown by the four cases of *fistula in ano*, which were divided in the ordinary way. I had some eight cases in which this affection was treated by Jenks's¹ method of excising the fistula, and sewing up the fresh surfaces from the bowel to the original skin-opening. In three of these eight cases, in which the fistulæ were not deep and were of moderate extent, the patients did well; in the other five the fistulæ had deeper internal orifices, and their tracts were either longer or deeper, and in two instances there were diverticula, so that it was difficult to dissect out the suppurating tract itself, and the final introduction of the sutures was not easy, especially as regarded the closure of the rectal end of the incision. After all this had been done, failure was met with in four out of the five cases. As the last trial was as unfortunate as the first, I could not attribute it all to inexperience in the operation, and hence my faith in the method has been much diminished. In the four cases of haemorrhoids I have likewise returned to the so-called method of Allingham, after trying in five cases Whitehead's² plan of cutting off the pile, tying the main vessels, and then sewing together the divided mucous membrane. There was in nearly every one of these cases so much troublesome venous oozing from the divided tissues (which had been cut somewhat as in Allingham's method) that the little operation was rendered unduly prolonged and annoying, and neither was there a rapid cure nor a subsequent diminution of the pain and other discomfort often encountered in operations for haemorrhoids. I have also, in six cases, tried the crushing off of the pile after partial section, as practiced by Mr. Allingham, and with a fairly satisfactory result; but I have at all times the feeling that the patient would be safer from the risk of haemorrhage when the vessels are tied, and sufficient advantage has not accrued so far to warrant me in incurring this possible danger. Two

¹ "New Method of Operating for Fistula in Ano." "Trans. of the Am. Gynæcological Society," p. 139, 1883.

² "On Haemorrhoids." "British Medical Journal," February 4, 1882.

cases of *stricture of the rectum* were operated upon; in one the stricture resulted from an operation performed a year before for *imperforate anus* in an infant two days old. By an incision carried from the dimple of the anus to the coccyx, and gradually deepened to the extent of an inch and a half along the sacral curve, until a moderately distended rectum was reached and opened. The mother was instructed how to keep the opening patent by the use of plugs and the oiled finger. However, contraction gradually took place, and in December, 1886, the child was brought to the hospital for further help, it being in good condition but suffering from obstinate constipation. The opening had contracted to the size of a pencil. Under ether this was enlarged by nicking it, and principally by a cut posteriorly, so as easily to admit my finger. A bougie is still used occasionally, but the relief is complete.

The second stricture, which was in a woman and was apparently due to parturient causes, was situated from an inch and a half to two inches from the anus; it was a fibrous stricture, with a moderate amount of ulceration, and admitted only the little finger. Instead of resorting to Verneuil's proctotomy, or the modification of the same in which the knife was used in lieu of the galvanic or wire écraseur, I adopted a plan which I have used four times during the last three or four years, with excellent results. I had found on eight occasions, that, in making a free posterior incision of the rectal stricture, extending back to the coccyx, the subsequent healing of the external wound was often very tedious, frequently occupying more than a year, and was also followed by more or less loss of sphincter power. I have, as before stated, changed this incision, especially in the case of strictures situated two inches and a half from the anus, to one extending posteriorly to the coccyx or sacrum, previously stretching the anus without dividing the external sphincter. To avoid the collection and retention of secretions in this wound pouch, a puncture is made with a knife, from the tip of the coccyx to the wound in the bowel, and through this is carried a drainage-tube; in other words, a traumatic fistula in ano is made. The wound in the bowel is then

packed with sticky iodoform gauze and an antiseptic dressing is applied over the anus. The bowels are kept quiet for several days, and, if the temperature shows that all is going well, the rubber drainage-tube is withdrawn on the third or fourth day. In every instance in which this plan has been tried, the tube opening has closed promptly, so that no fear need be entertained, I think, that a permanent fistula will be established. A large bulbous or rubber bougie is subsequently introduced at regular intervals according as one's judgment directs. The results as regards the recurrence of the stricture have been equally satisfactory with those obtained with the major operations, and more so as regards the rapidity of the cure. For strictures situated higher up, the open method is preferable, as it allows the surgeon to recognize and to repair any damage that may possibly be done to the peritoneum.

One case of *spina bifida* in a child eight months old was treated by injection; the tumor was of the size of a large orange, and was situated over the upper part of the sacrum. Cutaneous outgrowths extended from its base nearly to its apex, where they were lost in a thin, pellucid cyst-wall. Puncture had been tried some weeks previously, causing aggravation of the existing paralysis of the legs. The child was in robust health. A needle was thrust through the adjacent sound skin into the tumor, and about one drachm of a clear, colorless fluid (subsequently found to be free from sugar) was withdrawn, after which an equal quantity of Morton's fluid was slowly injected into it. This fluid consists of ten grains of iodine and thirty grains of iodide of potassium, dissolved in an ounce of glycerin. No special reaction followed its use, but a month later the swelling was decidedly smaller, though it is probable that a repetition of the injection will be necessary.

In the "Transactions of the Clinical Society" for 1884-1885 fifty cases were reported which were treated in this way, forty-one being successful, as opposed to twenty with five deaths after the use of simple tincture of iodine.

[TO BE CONCLUDED]